Malaria Laboratory Testing Algorithm

Malaria suspected based on clinical findings and exposure history

Immediately perform 1 or more of the following tests at local lab on a STAT basis

Rapid results ~15 minutes; requires confirmation test

Gold Standard

- Microscopic examination of blood films
- Examination of both thick and thin blood films is the gold standard for malaria diagnosis

Optional, but subject to local availability

Nucleic Acid Amplification Test (eg, PCR) if available on a STAT basis at a local laboratory

NEGATIVE

- Consider repeat testing every 12-24 hours for a total of 3 evaluations to exclude malaria from the differential diagnosis

POSITIVE

- Order additional testing if needed to:
  - Confirm the diagnosis
  - Identify the infecting species
  - Determine the percentage of parasitemia

MAL / Rapid Malaria/Babesia Smear

Order for:
- Confirming the diagnosis
- Determining percentage of parasitemia
- When mixed infection with more than 1 Plasmodium species is suspected

LMALP / Malaria PCR with Parasitemia Reflex
OR
LCMAL / Malaria, Molecular Detection, PCR Only

Order for:
- Suspected cases with low parasite load
- Cases with poor morphology due to receipt of prior antimalarial therapy or prolonged sample exposure to EDTA

Percent parasitemia is calculated using the thin blood film. Positive results by the LMALP automatically reflex to calculation of percent parasitemia.

Routine confirmatory testing

PCR option

1 Malaria can be a rapidly fatal disease, particularly when due to Plasmodium falciparum, and less commonly P vivax and P knowlesi, and testing must be performed on a STAT basis. If testing is not available at the local laboratory, then arrangements must be made with another nearby laboratory that can provide immediate testing. A single negative test does not rule-out malaria. Consider repeat testing every 12 to 24 hours for a total of 3 evaluations if clinically indicated. Other laboratory tests (ie, complete blood count with differential, electrolyte panel, blood glucose, bilirubin, urinalysis, blood cultures) may be indicated to assess the severity of malaria and evaluate other potential causes of the patient's illness.

2 Rapid screening tests such as lateral flow immunochromatographic assays generally provide sensitive detection of high levels of P falciparum and P vivax infection (ie, 2000 parasites/mcL), but lack sufficient sensitivity for detecting low levels of parasitemia (ie, ≥200 parasites/mcL) and other Plasmodium species.